POLAR BEAR DENNING SURVEY

GATESHEAD ISLAND, N.W.T.

Northwest Territories Resources, Wildlife & Economic Development

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GATESHEAD ISLAND, N.W.T.

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ABSTRACT

A polar bear denning survey of the Gateshead Island area was made from snowmachines in April 1982. Fifteen dens were located and 10 of these were maternity dens. Three dens were occupied at the time of the survey. The Gateshead Island area is used consistently by denning polar bears and represents the highest density denning area known from the Arctic Archipelago.

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INTRODUCTION

In Canada, important maternity denning areas for polar bear (Ursus maritimus) have been described from western Hudson Bay (Jonkel et al. 1970), eastern Baffin Island, Southampton Island and Simpson Peninsula (Harington 1968). Only scattered den sites have been reported for most of the Canadian Arctic Archipelago where widespread and abundant denning habitat is available along the extensive coastlines (Stirling et al. 1978).

In 1977, the Gateshead Island region in the Central Arctic was defined as an important denning area after nine dens were found within a comparatively small area (Spencer and Schweinsburg 1979). Previous to the denning survey, 90 bears had been captured in this area between 1972-77 as part of a polar bear population study by the N.W.T. Wildlife Service (Schweinsburg et al. 1981).

To confirm observations from the 1977 survey and to determine whether the Gateshead Island area is used consistently by denning polar bears, another ground survey was initiated in April 1982.

STUDY AREA

Gateshead Island is located about 250 km northeast of Cambridge Bay, between M'Clintock Channel and Victoria Strait (Fig. 1). The island is small (about 260 km^2) and mostly flat with a maximum elevation of 41 m. Several smaller islands are located mainly to the north and east of Gateshead Island. Tingauyalik Island ("land of lichen") lies about 25 km to the southwest and covers about 30 km^2.

The area is ice covered most of the year with unconsolidated drifting ice floes during the warmest months. The prevailing surface current is northwesterly, down through M'Clintock Channel (Collin 1958).

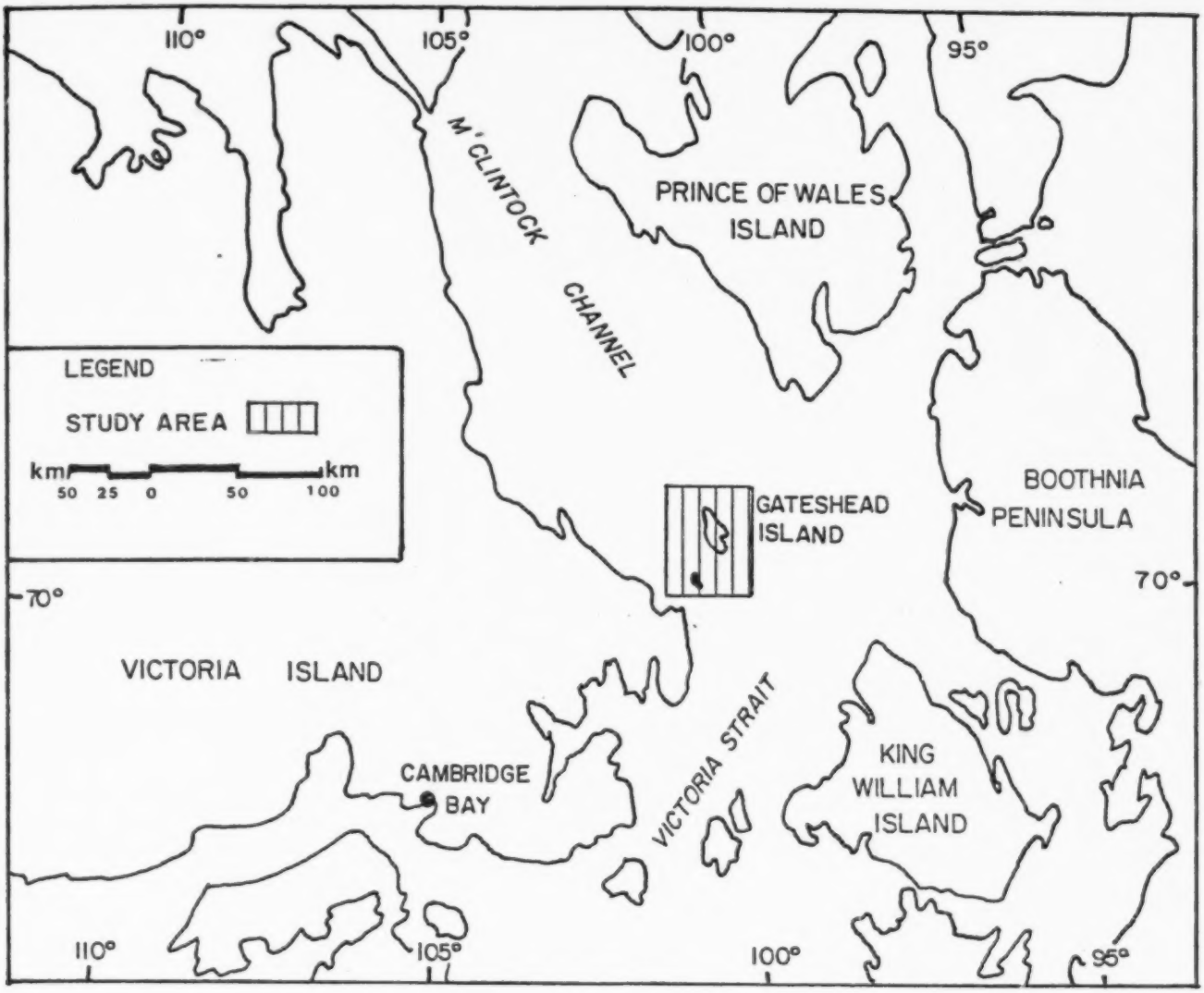

Figure 1. The Gateshead Island study area.

METHODS

Observations of bear dens were made from snowmachines between 5-14 April 1982. Eight days were spent searching for dens and incidental observations were also made during travelling days. A base camp was established on the east side of Gateshead Island, close to the highest point (Fig. 2). Another camp was made on the southeast tip of Tingauyalik Island.

Dens were found by searching the islands for mounds of excavated snow ("porches" - Harrington 1968) that were easily visible in the flat terrain either with binoculars or the naked eye. Once a den was located, a 2-m steel rod was used to probe the den. Dens that were not occupied were excavated where possible and characteristics of the den were recorded. Aspect, bear signs (tracks, urine stains and scats) and the extent of icing inside the den were recorded.

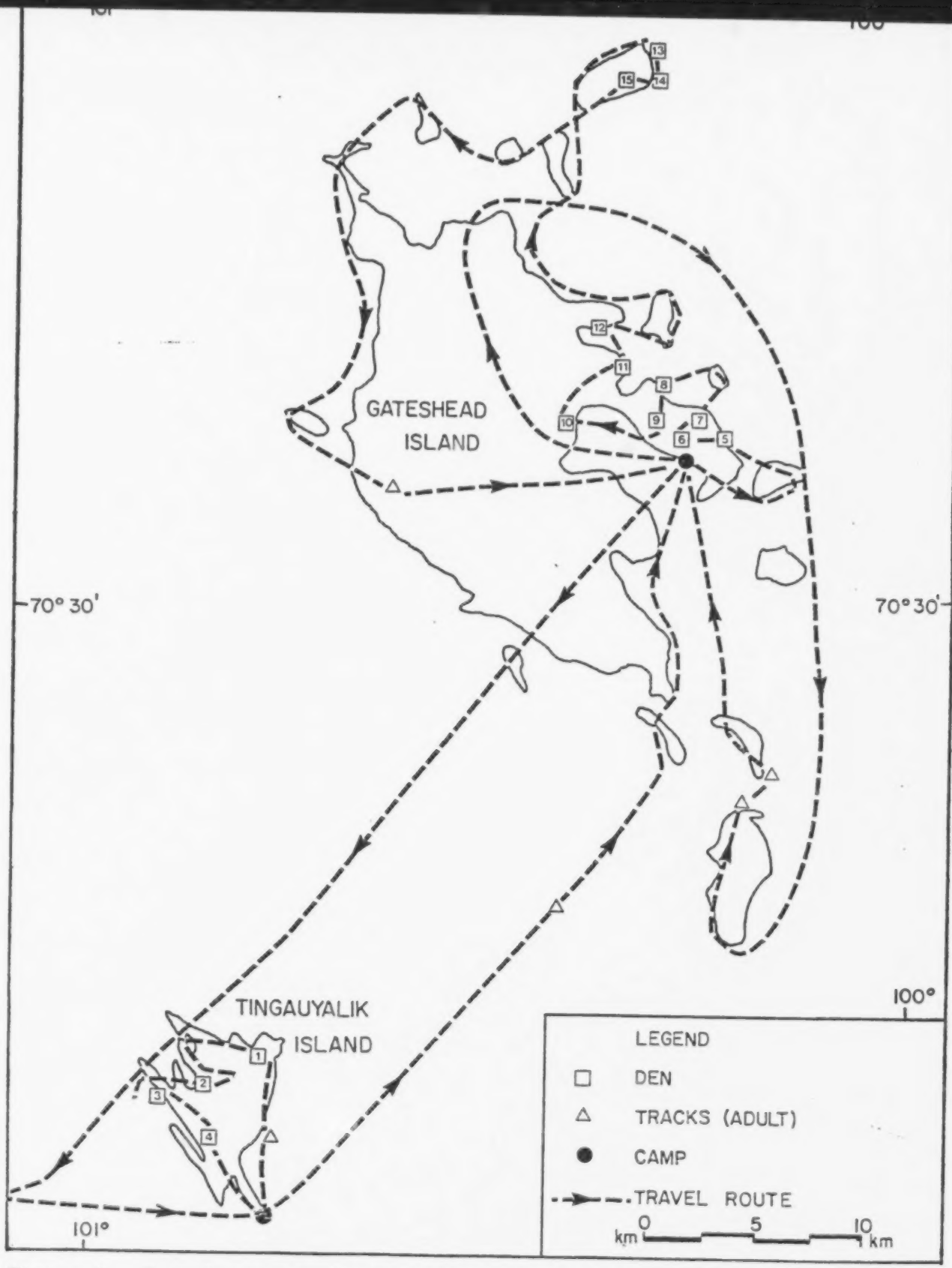

Figure 2. Travel route and observed den sites during polar bear denning survey. Gateshead Island, N.W.T., 1982.

RESULTS AND DISCUSSION

Fifteen dens were located in the Gateshead Island region (Fig. 2). Ten of these were identified as maternity dens by the tracks of newborn cubs around the den location and by the heavy icing inside the den (Appendix A). Three maternity dens (8, 10 and 11) were occupied at the time of the survey.

The remaining five dens were probably "temporary dens" (Harington 1968) used by single, non-breeding bears. Two of these (1 and 3) were shallow dens with little icing inside while the other three (4, 9 and 12) were dug deep and appeared to have been occupied for a longer period of time. Temporary dens may be used for periods of a day or two up to 3 or 4 months, or, in the case of non-pregnant females, up to 6 months (Harington 1968).

Most of the dens were located on the eastern part of Gateshead Island (Fig. 2). Compared with the rest of the island, the terrain in this area is relatively more broken and elevated providing more suitable denning habitat for polar bears. Concentrations of maternity dens were found on the island northeast of Gateshead Island (three dens within 1.5 km of each other) and near the base camp (three dens within 2.0 km of each other). No dens were found in the interior of the island or more than 1 km from the coast.

Ten dens were facing in a northwesterly direction; the remaining five faced northeasterly. This is different from the predominantly south-facing dens found on Gateshead Island in 1977 (Spencer and Schweinsburg 1979) or by other workers (Harington 1968, Uspenski and Kistchinski 1970). The selection of den sites

is probably dependent upon the amount of snow accumulation at the time of denning. Predominant southerly winds in the fall of 1981 resulted in a snow build-up on north-facing hills and ridges (David Kaomayok pers. comm.). This may explain the observed selection of north-facing den sites on Gateshead Island during the 1981/82 winter.

CONCLUSION

To our knowledge, the Gateshead Island area represents the highest density denning area known from the Arctic Archipelago. Based on this and previous surveys (Spencer and Schweinsburg 1979, Schweinsburg et al. 1981) the area appears to be used consistently by denning polar bears. Future surveys should be done along the eastern coast of Victoria Island, particularly around the Collinson Peninsula and Admirality Island, to determine whether that region also constitutes an important denning area.

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PERSONAL COMMUNICATIONS

Kaomayik, David, Assistant Wildlife Officer, N.W.T. Wildlife Service, Cambridge Bay, N.W.T.

LITERATURE CITED

Collin, A.E. 1958. An oceanographic study of Prince Regent Inlet, the Gulf of Boothia and the adjacent waters. Fish. Res. Board Can. Ms. Rep. Ser. No. 13.

Harington, C.R. 1968. Denning habits of the polar bear (Ursus maritimus Phipps). Can. Wildl. Serv. Rep. Ser. No. 5. 30 pp.

Jonkel, C.J., G.B. Kolenosky, R.J. Robertson, and R.H. Russell. 1970. Further notes on polar bear denning habits. Pages 142-185 in: Herrero, S. (ed.), Bears: their biology and management. IUCN Publ. New Ser. 23.

Schweinsburg, R.E., D.J. Furnell and S.J. Miller. 1981. Abundance, distribution and population structure of polar bears in the lower Central Arctic Islands. N.W.T. Wildl. Serv. Comp. Rep. No. 2. 80 pp.

Spencer, Wayne and R.E. Schweinsburg. 1979. Polar bear denning area at Gateshead Island, Northwest Territories. N.W.T. Wildl. Serv. File Rep. No. 1. 9 pp.

Stirling, I., R.E. Schweinsburg, W. Calvert, and H.P.L. Kiliaan. 1978. Population ecology of the polar bear along the proposed Arctic Islands gas pipeline route. Final Rep. to Environ. Manage. Serv., Can. Dept. Environ. 93 pp.

Uspenski, S.M. and A.A. Kistchinski. 1970. New data on the winter ecology of the polar bear (Ursus maritimus Phipps) on Wrangel Island. Pages 181-197 in: Herrero, S. (ed.), Bears: their biology and management. IUCN Publ. New Ser. 23.

APPENDIX A. Characteristics of polar bear den sites. Gateshead Island, N.W.T., 1982. The numbers refer to Figure 2.

Number	Type of den	Comments
1	Temporary den	Den dug shallow into the side of a small hill. Hardly any icing on walls and ceiling. Old tracks and urine spots in the den area. Tracks headed in a northeasterly direction.
2	Maternity den	Den dug deep into the side of a hill. Heavy icing on walls and ceiling. Abundance of newborn cub tracks and urine spots. Tracks headed in a northeasterly direction. Den appeared to have been vacated 1-2 weeks earlier.
3	Temporary den	Den dug shallow into the side of a hill. Little icing on walls and ceiling. Urine and scat found inside den. Tracks (adult) headed due south.
4	Temporary den	Den dug deep into top of ridge. Heavy icing inside den; appeared to have been used for a long time. Old tracks headed due west.
5	Maternity den	Den dug deep into side of a hill. Heavy icing on walls and ceiling. Newborn cub tracks around the den location.

Appendix A continued.

Number	Type of den	Comments
6	Maternity den	Den located close (1.5 km) to base camp. Heavy icing inside the den; also a lot of urine stains were found inside and around the den. Newborn cub tracks outside the den.
7	Maternity den	Den appeared to have been just vacated with urine and newborn cub tracks all around the den. Fresh tracks headed due east.
8	Maternity den	Den, dug into side of a hill, was occupied and a female was observed through the opening of the den. Newborn cub tracks were found around the den.
9	Temporary den	Heavy icing and lots of urine stains inside the den. Old tracks (adult) were found all around the den.
10	Maternity den	Den was occupied with newborn cub tracks and urine stains around the den location. Den was dug into the side of a hill; another partially dug den was nearby.
11	Maternity den	Den was occupied with newborn cub tracks and urine stains around the den location.

Appendix A continued.

Number	Type of den	Comments
12	Temporary den	Heavy icing and urine stains inside the den. Tracks (adult) headed due east towards a small island.
13	Maternity den	Heavy icing inside the den. Newborn cub tracks were found around the den. Tracks (adult and cub) headed in a northeasterly direction.
14	Maternity den	Same as No. 13.
15	Maternity den	Heavy icing and urine stains inside the den. Newborn cub tracks around the den. Tracks (adult and cub) headed due south.